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## Collating Sequence Chart for IBM z/Series

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In 2003, I was asked, "Why Hexadecimal?" in responding that it is easier to write and read hexadecimal compared to a string of binary numbers, i.e. 1's and 0's, it opened a debate as to how to interpret the hexadecimal, and the differences between ASCII and EBCDIC notation.

This chart gives all the possible binary values of any byte, and a common ASCII and EBCDIC translation of that byte. In this context the translation will show how the character represented by that byte would appear in print or on a screen assuming the correct level of support at the device level.

If the columns EBCDIC and ASCII columns below are blank, then the byte contains a non-printable value (or one which could not be mapped with the authors keyboard).

The source material for the contents of this document came from an IBM Reference Summary GX20-0406.

<b>Decimal</b>	<b>Binary</b>	<b>Hex</b>	<b>EBCDIC</b>	<b>ASCII</b>
000	0000 0000	00		
001	0000 0001	01		
002	0000 0010	02		
003	0000 0011	03		
004	0000 0100	04		
005	0000 0101	05		
006	0000 0110	06		
007	0000 0111	07		
008	0000 1000	08		
009	0000 1001	09		
010	0000 1010	0A		
011	0000 1011	0B		
012	0000 1100	0C		
013	0000 1101	0D		
014	0000 1110	0E		
015	0000 1111	0F		
016	0001 0000	10		
017	0001 0001	11		
018	0001 0010	12		
019	0001 0011	13		
020	0001 0100	14		



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Decimal	Binary	Hex	EBCDIC	ASCII
021	0001 0101	15		
022	0001 0110	16		
023	0001 0111	17		
024	0001 1000	18		
025	0001 1001	19		
026	0001 1010	1A		
027	0001 1011	1B		
028	0001 1100	1C		
029	0001 1101	1D		
030	0001 1110	1E		
031	0001 1111	1F		
032	0010 0000	20		
033	0010 0001	21		!
034	0010 0010	22		"
035	0010 0011	23		#
036	0010 0100	24		\$
037	0010 0101	25		%
038	0010 0110	26		&
039	0010 0111	27		'
040	0010 1000	28		(
041	0010 1001	29		)
042	0010 1010	2A		*
043	0010 1011	2B		+
044	0010 1100	2C		,
045	0010 1101	2D		-
046	0010 1110	2E		.
047	0010 1111	2F		/
048	0011 0000	30		0
049	0011 0001	31		1
050	0011 0010	32		2
051	0011 0011	33		3
052	0011 0100	34		4
053	0011 0101	35		5
054	0011 0110	36		6
055	0011 0111	37		7
056	0011 1000	38		8
057	0011 1001	39		9



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Decimal	Binary	Hex	EBCDIC	ASCII
058	0011 1010	3A		:
059	0011 1011	3B		;
060	0011 1100	3C		<
061	0011 1101	3D		=
062	0011 1110	3E		>
063	0011 1111	3F		?
064	0100 0000	40		@
065	0100 0001	41		A
066	0100 0010	42		B
067	0100 0011	43		C
068	0100 0100	44		D
069	0100 0101	45		E
070	0100 0110	46		F
071	0100 0111	47		G
072	0100 1000	48		H
073	0100 1001	49		I
074	0100 1010	4A		J
075	0100 1011	4B	.	K
076	0100 1100	4C	<	L
077	0100 1101	4D	(	M
078	0100 1110	4E	+	N
079	0100 1111	4F		O
080	0101 0000	50	&	P
081	0101 0001	51		Q
082	0101 0010	52		R
083	0101 0011	53		S
084	0101 0100	54		T
085	0101 0101	55		U
086	0101 0110	56		V
087	0101 0111	57		W
088	0101 1000	58		X
089	0101 1001	59		Y
090	0101 1010	5A	!	Z
091	0101 1011	5B	\$	[
092	0101 1100	5C	*	\
093	0101 1101	5D	)	}
094	0101 1110	5E	;	^



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Decimal	Binary	Hex	EBCDIC	ASCII
095	0101 1111	5F	¬	–
096	0110 0000	60	–	
097	0110 0001	61	/	a
098	0110 0010	62		b
099	0110 0011	63		c
100	0110 0100	64		d
101	0110 0101	65		e
102	0110 0110	66		f
103	0110 0111	67		g
104	0110 1000	68		h
105	0110 1001	69		i
106	0110 1010	6A		j
107	0110 1011	6B	,	k
108	0110 1100	6C	%	L
109	0110 1101	6D	–	m
110	0110 1110	6E	>	n
111	0110 1111	6F	?	o
112	0111 0000	70		p
113	0111 0001	71		q
114	0111 0010	72		r
115	0111 0011	73		s
116	0111 0100	74		t
117	0111 0101	75		u
118	0111 0110	76		v
119	0111 0111	77		w
120	0111 1000	78		x
121	0111 1001	79		y
122	0111 1010	7A	:	z
123	0111 1011	7B	#	{
124	0111 1100	7C	@	
125	0111 1101	7D	'	}
126	0111 1110	7E	=	~
127	0111 1111	7F	"	
128	1000 0000	80		
129	1000 0001	81	a	
130	1000 0010	82	b	
131	1000 0011	83	c	



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Decimal	Binary	Hex	EBCDIC	ASCII
132	1000 0100	84	d	
133	1000 0101	85	e	
134	1000 0110	86	f	
135	1000 0111	87	g	
136	1000 1000	88	h	
137	1000 1001	89	i	
138	1000 1010	8A		
139	1000 1011	8B	{	
140	1000 1100	8C		
141	1000 1101	6D		
142	1000 1110	8E		
143	1000 1111	8F	+	
144	1001 0000	90		
145	1001 0001	91	j	
146	1001 0010	92	k	
147	1001 0011	93	l	
148	1001 0100	94	m	
149	1001 0101	95	n	
150	1001 0110	96	o	
151	1001 0111	97	p	
152	1001 1000	98	q	
153	1001 1001	99	r	
154	1001 1010	9A		
155	1001 1011	9B	}	
156	1001 1100	9C		
157	1001 1101	9D		
158	1001 1110	9E		
159	1001 1111	9F		
160	1010 0000	A0		
161	1010 0001	A1		
162	1010 0010	A2	s	
163	1010 0011	A3	t	
164	1010 0100	A4	u	
165	1010 0101	A5	v	
166	1010 0110	A6	w	
167	1010 0111	A7	x	
168	1010 1000	A8	y	



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Decimal	Binary	Hex	EBCDIC	ASCII
169	1010 1001	A9	z	
170	1010 1010	AA		
171	1010 1011	AB		
172	1010 1100	AC		
173	1010 1101	Ad		
174	1010 1110	AE		
175	1010 1111	AF		
176	1011 0000	B0		
177	1011 0001	B1		
178	1011 0010	B2		
179	1011 0011	B3		
180	1011 0100	B4		
181	1011 0101	B5		
182	1011 0110	B6		
183	1011 0111	B7		
184	1011 1000	B8		
185	1011 1001	B9		
186	1011 1010	BA		
187	1011 1011	BB		
188	1011 1100	BC		
189	1011 1101	BD	]	
190	1011 1110	BE		
191	1011 1111	BF		
192	1100 0000	C0		
193	1100 0001	C1	A	
194	1100 0010	C2	B	
195	1100 0011	C3	C	
196	1100 0100	C4	D	
197	1100 0101	C5	E	
198	1100 0110	C6	F	
199	1100 0111	C7	G	
200	1100 1000	C8	H	
201	1100 1001	C9	I	
202	1100 1010	CA		
203	1100 1011	CB		
204	1100 1100	CC		
205	1100 1101	CD		



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## Collating Sequence Chart for IBM z/Series

Decimal	Binary	Hex	EBCDIC	ASCII
206	1100 1110	CE		
207	1100 1111	CF		
208	1011 0000	D0		
209	1011 0001	D1	J	
210	1011 0010	D2	K	
211	1011 0011	D3	L	
212	1011 0100	D4	M	
213	1011 0101	D5	N	
214	1011 0110	D6	O	
215	1011 0111	D7	P	
216	1011 1000	D8	Q	
217	1011 1001	D9	R	
218	1011 1010	DA		
219	1011 1011	DB		
220	1011 1100	DC		
221	1011 1101	DD		
222	1011 1110	DE		
223	1011 1111	DF		
224	1110 0000	E0		
225	1110 0001	E1		
226	1110 0010	E2	S	
227	1110 0011	E3	T	
228	1110 0100	E4	U	
229	1110 0101	E5	V	
230	1110 0110	E6	W	
231	1110 0111	E7	X	
232	1110 1000	E8	Y	
233	1110 1001	E9	Z	
234	1110 1010	EA		
235	1110 1011	EB		
236	1110 1100	EC		
237	1110 1101	ED		
238	1110 1110	EE		
239	1110 1111	EF		
240	1111 0000	F0	0	
241	1111 0001	F1	1	
242	1111 0010	F2	2	



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## Collating Sequence Chart for IBM z/Series

Decimal	Binary	Hex	EBCDIC	ASCII
243	1111 0011	F3	3	
244	1111 0100	F4	4	
245	1111 0101	F5	5	
246	1111 0110	F6	6	
247	1011 0111	F7	7	
248	1111 1000	F8	8	
249	1111 1001	F9	9	
250	1111 1010	FA		
251	1111 1011	FB		
252	1111 1100	FC		
253	1111 1101	FD		
254	1111 1110	FE		
255	1111 1111	FF		